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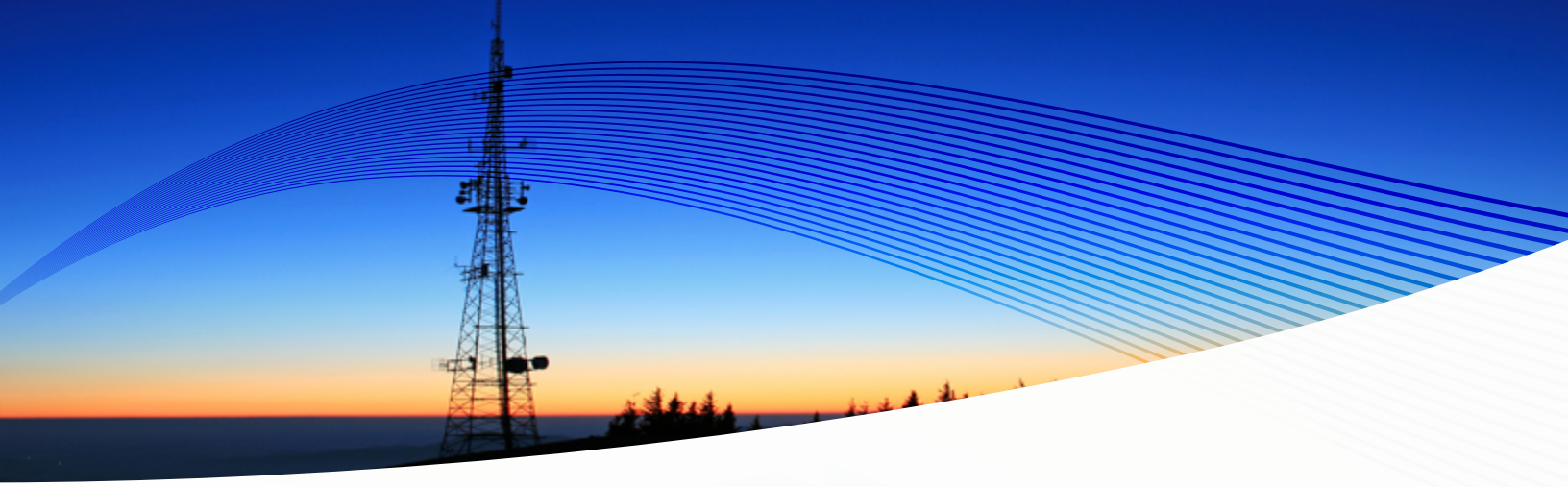
Complete control and confidence

Davicom DV Series –
Monitoring, Alarm and Control for your remote sites

Davicom's line of intelligent site monitoring systems is designed to meet the requirements of the broadcasting and wireless telecommunications industries. These best-in-class, stand-alone monitoring and control units interface easily with virtually any type of remote site equipment and sensors, which ensures maximum flexibility and expandability. Immediate access to real-time site information can be just a mouse click away

Reliable Technology Leading the Field Since 1994

Davicom systems provide automation with decision-making features and commands that go well beyond conventional telemetry systems. The Davicom units can for example detect an RF failure; place the standby transmitter on-air to restore the signal, and alert on-call personnel. Engineering staff can then diagnose the problem from the event history log and, using remote measurements, decide on the appropriate course of action.



Ultimate Connectivity for Maximum Performance

Multilevel alarms can be sent by the Davicom units to the Network Operations Centre (NOC) and other resources by e-mail, phone (voice or SMS), pager, SNMP traps, fax, modem, or to the DavNet multi-site alarm management software. Multiple alarm-call lists allow the Davicom to contact different groups depending on the event, or the day and time. Individual signal and status conditions can be filtered using time delays and hysteresis to prevent annoyance alarms.

Davicom units can be interrogated via PC using the DavLink software, with a Web browser or SNMP manager, or by telephone to check signals and status, monitor live audio feeds and execute commands. Blackberry®, iPhone® and other smart phones and devices can also be used to monitor and control a site over the mobile Internet and from WiFi hotspots. The Davicom's reach-through serial ports can be used to access and control other on-site ancillary equipment. The Davicom units can even ping site equipment through its local IP port and monitor for dial tone on the telephone line.

Save Time & Money

For several years, leading broadcasters and first responder organizations around the world have been relying on efficient Davicom technology to remotely monitor and control their site equipment and reduce operating costs.

Davicom system features and benefits include:

- Easy installation, set-up, and operation.
- Reliability proven in the field since 1994.
- Single-location management of all sites.
- Automated operations and manual control to minimize operational downtime.
- Fewer trips to remote sites.
- Stand-alone units that do not require a computer at the site.
- Direct monitoring of site audio via telephone or IP streaming.
- Real-time access to site information from anywhere in the world.
- No moving parts such as fans or hard-disk drives.

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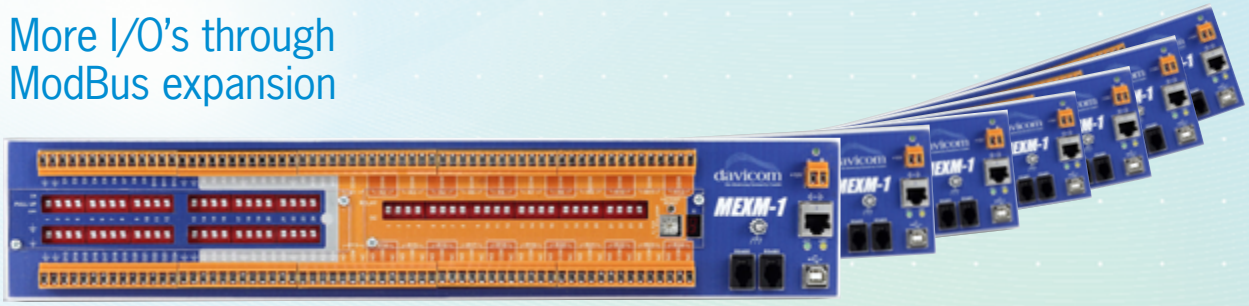
DV-Micro is Adapted for Tight-Budget Requirements

DV-Mini Unit is Ideal for Single-Transmitter Sites

DV-208 and DV-216 are Designed for Larger Sites

More I/O's through ModBus expansion



	INPUTS		OUTPUTS	CONNECTIONS				REACH THROUGH	AUDIO MONITORING
	Metering	Status	Relay	USB	Serial	IP	Phone		Phone/IP
DV-Micro	8	8	8	1	0	1	1	0 (+8#)	1*
DV-Mini	8	16	8	1	1	2	1	1 (+8#)	2
DV-208	8	16	16	1	2	2	1	4 (+8#)	4
DV-216	16	32	32	1	2	2	1	8 (+8#)	8
ModBus	Adds up to 128	Adds up to 256	Adds up to 72						

#Through USB-serial adapters *Phone only

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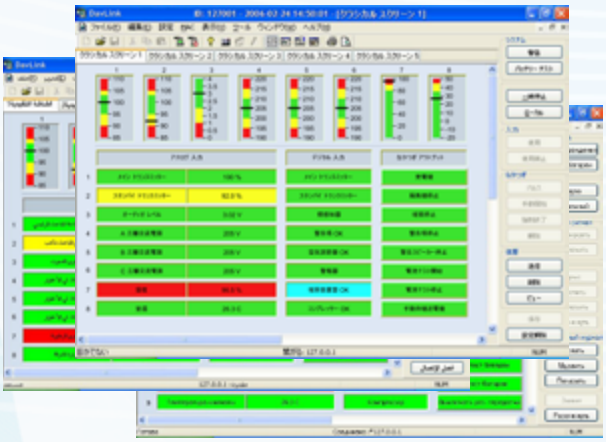
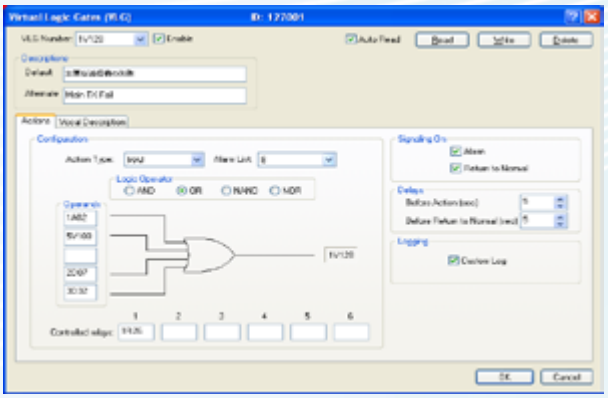


Bilingual Voice & Screen Capability

Each user can select the language for DavLink displays (ASCII and Unicode character sets), as well as the voice response system. Custom vocabulary can be factory-recorded into Davicom units, allowing them to "speak" information using different descriptive phrases.

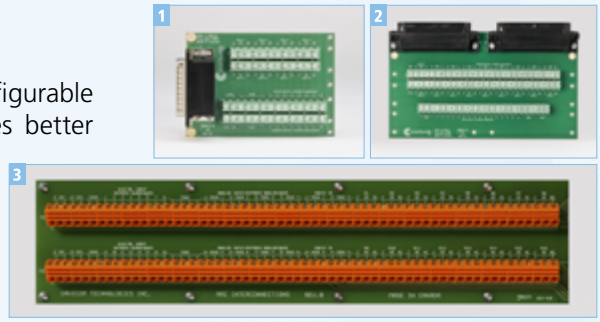


Intuitive Software, No Macro or Script Writing

DavLink software uses Boolean logic (AND, OR, NAND, NOR) and mathematical functions (+ , - , X , ÷) to allow non-programmers to create complex operations with ease. Each Davicom unit has 128 virtual logic gates and 16 mathematical functions to program multiple conditional actions and complex logic functions (control relays, set qualifiers, view flags, or other events). In addition, Davicom units have qualifier and inverter functions on all inputs. A built-in configuration wizard guides users through a step-by-step set-up procedure.

Complete Package, Relays Included

All output relays are included and are individually software configurable for latch, follow and variable-length pulse modes. This ensures better compatibility with equipment control requirements. Package includes screw-terminal break-out panels, cables and a 12VDC power supply. DavLink software and firmware upgrades are included, upgrades are free and there is NO ANNUAL MAINTENANCE FEE.



1. DV-Micro I/O Panel 2. DV-Mini I/O Panel 3. DV-208/DV-216 I/O Panel

Time & Event-Based Conditions

Date/time events & windows can be set up with the 128 timers available in each Davicom unit. For example, AM antenna pattern changes with specific time windows for each month can be configured. Additionally, 16 alarm call lists can be constructed with specific time windows or events (alert different persons during day/night work shifts, contact the fire department directly upon fire alarm, etc.).

Multi-User

Up to 4 different users out of a possibility of 16 can connect simultaneously to Davicom units. Users can have access levels ranging from simple view-only to full administrative privileges. In emergency situations, Supervisor-level users can take control away from Operators who are already connected.

Customizable Software

DavLink's graphics editor allows the creation of workspaces that reflect the exact setup of equipment at each remote site. Users can have their own customized, password-protected workspace and create multiple view panels with diagrams, and even pictures. Users can also focus-in on desired information thanks to user defined and system logs.

Future-Proof

- Powerful processor and lots of RAM and Flash memory
- Easily expandable, high-level program code allows for future enhancements
- Web-browser access
- Smart-phone access
- Full SNMP support

Secure & Reliable

- 128-bit encrypted IP communications
- Dual-modem ready (primary link over landline, and backup using GSM for example)
- Firmware & user configuration remain intact during power failure
- Highly accurate TCXO-based real-time clock
- No moving parts.

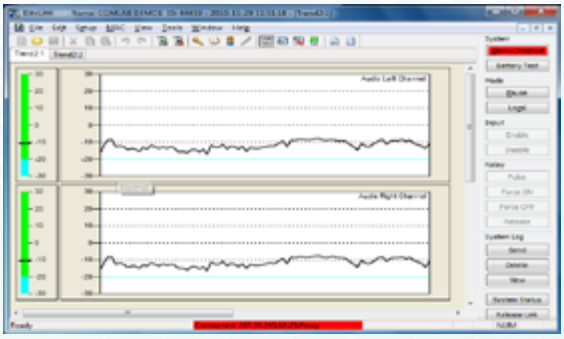
Modbus* I/O expansion

Low-cost option for adding up to 128 metering inputs, 256 status inputs and 72 relay outputs, even to a DV-Micro! All Davicom units accommodate both RTU and TCP type ModBus devices from manufacturers such as ADAM® and Koyo®. Once connected and configured, the Modbus units simply appear as extra I/O points in the Davicom's operating structure. These I/O's can therefore be used within the Davicom's powerful Virtual Logic Gate structure to automatically take action at a site or to send alarms if required.

* Modbus is a serial communications protocol published by Modicon in 1979 for use with its programmable logic controllers (PLCs). It has become a de facto standard protocol for industrial communications, and is now the most commonly available means of connecting industrial electronic devices.

Data logging and DavLink data trending

All Davicom units have the capability of taking input readings at a 1-Hz rate and storing them to an external USB device such as a Flash memory stick or hard disk drive. Up to 32 inputs can be simultaneously sampled and stored in this manner. Readings can then be browsed and/or transferred at a later date to facilitate troubleshooting of intermittent site problems. Note that a data connection with adequate bandwidth must be available to download the complete site data log. Alternatively, small snippets of data for particular dates and times can be transferred over a modem connection, or the USB memory device could be physically brought back from the site following a normal site visit.



The DavLink site communications application can be used to view site readings in graphical form when connected live to a site. This allows easy visualization of site trends and problems.

Simple Network Management Protocol (SNMP)

All Davicom units, except the DV-Micro, have a built-in SNMP agent to allow monitoring and control from a central SNMP manager. When activated, this agent allows remote SNMP management systems to perform GETs, SETs and to receive traps from Davicom units.

In addition, all Davicom units, except the DV-Micro have a built-in SNMP Manager that allows them to take readings, set controls and receive alarms from SNMP enabled devices such as transmitters. This monitoring and control is achieved over a simple RJ-45 TCP/IP connection between the Davicom and the device, thus greatly facilitating interface wiring. This I/O functionality is fully integrated into the Davicom's powerful Virtual Logic Gate structure to take full advantage of all of the Davicom features.

Network Management Software

DavNet is an optional Network Operations Center management software that collects alarms and data from large networks of Davicom units. DavNet can redirect alarms to external printers, e-mail, SMS text messages and SNMP traps. DavNet also includes a built-in web server to give external users access to NOC data and to Davicom units.

Electromagnetic Compatibility

Davicom units have been developed and tested to operate in high-level electric fields of up to 10V/m and to resist electrostatic discharges of up to 12kV. Exactly the type of environment you would expect to find near high power transmitters on a mountaintop with a metal tower!

Optional Sensors

Davicom can supply various external sensors that allow measurement of quantities such as: AC line voltage, AC line current, AC line frequency, indoor and outdoor temperature and relative humidity.

Humidity Sensor

Bidirectional RF Power Sensor

RMS RF Power Sensor

Outdoor Temperature Sensor

Indoor Temperature Sensor

AC Current Sensor

AC Frequency Sensor

AC Voltage Sensor

Tested & Certified

Davicom units are FCC, Industry Canada and CE certified. They are also RoHS/WEEE compliant. The management system governing the manufacture of this product is ISO9001:2000 certified.

RoHS COMPLIANT 2002/95/EC

All Davicom units have the following features

- 128 Internal event Timers
- USB device port on front panel
- USB host port on back panel
- Secure IP over Ethernet or Internet
- Automatic action on conditions or events
- Voice response/DTMF over phone
- Bilingual voice
- Bilingual screens
- Can accommodate up to 6 Modems (1 internal)
- FAX transmission capability
- SMS transmission capability
- Automatic detection of PSTN dial-tone
- Pager transmission capability
- Compatible with DavNet NOC software
- Integrated Web Server
- 100 ms sampling interval on inputs
- Individual Relay pulsing to 0.1s resolution
- 16 alarm-call lists, with 10 recipients per list
- 16 Math Functions
- Configurable delays on individual alarms
- Hysteresis on metering inputs
- Local ping of 32 network devices
- 4 Multiple simultaneous users
- Special IP commands between remote Davicom units
- Alarms via E-Mail with HTML or XML file attachments
- Alarms via SMS
- Transmission to multiple Pagers
- Vocal descriptions from 400-word vocabulary
- Sync to NTP & ACTS servers
- Battery Discharge Test
- 333 MHz Processor Speed
- 2 MB Internal Battery Backed RAM
- PSTN Caller ID placed in log
- RF immunity to 10V/m
- Electro Static Discharge immunity to 12kV
- User configurable screens
- Multiple workspaces
- Operation from 12 VDC supply
- Automatic Day-Night settings from Latitude & Longitude
- Modbus I/O expansion capability in TCP or RTU modes
- Logging to: System log (1024 events), Custom log (1024 events), EAS log (1024 events), Data logs (millions of events at 1 Hz rate)
- Automatic VSWR calculation
- Linearization of sensor inputs
- Activity Timer on Status Inputs
- No moving parts (Cooling Fan nor HDD)

Choose the Davicom unit that best fits your needs:

Feature	DV-Micro	DV-Mini	DV-208	DV-216
Expandability	Modbus	Modbus, SNMP	Modbus, SNMP & DV-216	Modbus, SNMP
Metering Inputs	8	8	8	16
Status Inputs	8	16	16	32
Internal SPDT 60W Relays	8	8	16	32
Range of metering inputs	0-5 VDC	±2.5, ±10, ±20V	±2.5, ±10, ±20V	±2.5, ±10, ±20V
4-20mA mode on metering inputs	NO	YES	YES	YES
Audio detection on metering inputs	NO	YES	High precision True-RMS option	High precision True-RMS option
AUX. Serial Ports (for tunneling to other devices)	0*	1*	4*	8*
RS-232 port on front panel	NO	YES	YES	YES
Ethernet ports	1	2	2	2
SNMP agent built-in	NO	V1, V2C	V1, V2C	V1, V2C
SNMP Manager built-in	NO	GET, SET, TRAP, INFORM	GET, SET, TRAP, INFORM	GET, SET, TRAP, INFORM
Real Time Clock (RTC)	STD stability	TCXO, Hi Stab	TCXO, Hi Stab	TCXO, Hi Stab
Internal Flash ROM	32MB	64MB	64MB	64MB
Internal RAM	32MB	96MB	96MB	96MB
Audio port monitoring over dial-up	1	2	4	8
Audio port monitoring over IP streaming	0	2	4	8
Front-panel buttons	Local	Pause/Local	Pause/Local	Pause/Local
Operating temperature range	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)
Optional extended temperature range	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)
Rack space	1 RU, half width	1 RU	2 RU	2 RU
Dimensions	(W x H x D) 8 1/2 X 1 ¾ X 12 in	(W x H x D) 19 X 1 ¾ X 12 in	(W x H x D) 19 X 3 ½ X 12 in	(W x H x D) 19 X 3 ½ X 12 in
Weight (unit only)	4 lbs (1.8 kg)	6 lbs (2.7 kg)	7 lbs (3.2 kg)	8 lbs (3.6 kg)

* Up to 8 optional USB to serial adapters can be added for tunneling to other devices.

Comlab reserves the right to change the design and specifications without notice. Not all features presented here are available on all types of units. For more information on the Davicom line of products, or to find a distributor near you, visit www.davicom.com.

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